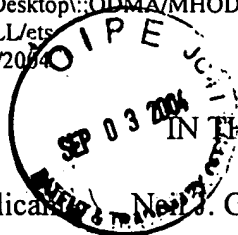


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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: **Neeraj J. Goldfine, Vladimir A. Zilberstein, David C. Grundyy and Andrew P. Washabaugh**

Application No.: 10/763,573

Group Art Unit: 2857

Filed: January 22, 2004

Examiner: Not Assigned

Confirmation No.: 4895

Title: **DAMAGE TOLERANCE USING ADAPTIVE MODEL-BASED METHODS**

CERTIFICATE OF MAILING OR TRANSMISSION	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or is being facsimile transmitted to the United States Patent and Trademark Office on:	
09/01/04	<i>E. Ellen T. Spear</i>
Date	Signature
<i>Ellen T. Spear</i>	
Typed or printed name of person signing certificate	

INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Information Disclosure Statement is submitted:

☐ under 37 CFR 1.129(a), or  
(First/Second submission after Final Rejection)

☒ under 37 CFR 1.97(b), or  
(Within any one of the following time periods: three months of filing national application (other than a CPA) or date of entry of the national stage in an international application; or before the mailing date of a first office action on the merits in a non-provisional application, including a CPA, or a Request for Continued Examination).

☐ under 37 CFR 1.97(c) together with either:  
☐ a Statement under 37 CFR 1.97(e), as checked below, or  
☐ a \$180.00 fee under 37 CFR 1.17(p), or  
(After the 37 CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

☐ under 37 CFR 1.97(d) together with:  
☐ a Statement under 37 CFR 1.97(e), as checked below, and  
☐ a \$180.00 fee under 37 CFR 1.17(p), or  
(Filed after final action or notice of allowance, whichever occurs first, but on or before payment of the issue fee)

☐ under 37 CFR 1.97(i):  
Applicant requests that the IDS and cited reference(s) be placed in the application filewrapper.  
(Filed after payment of issue fee)

Statement Under 37 CFR 1.97(e)

- ☐ Each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement; or
- ☐ No item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Statement Under 37 CFR 1.704(d) (Patent Term Adjustment)

Applies to original applications (other than design) filed on or after May 29, 2000

- ☐ Each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.
- ☒ Enclosed herewith is form PTO-1449:
- ☒ Copies of the cited references are enclosed.
- ☒ Since this application was filed after June 30, 2003, copies of issued U.S. patents and published U.S. applications are not required and are not being provided.
- ☐ Copies of the cited references are enclosed except those entered in prior application, U.S. Application No. [ ], to which priority under 35 U.S.C. 120 is claimed. [The earlier application contains copies of the cited references.]
- ☒ References AA, AB, AC, AD, AL, AR, AS, AT, and AU were cited in the enclosed International Search Report in a counterpart foreign application.
- ☐ The "concise explanation" requirement (non-English references) for reference(s) [ ] under 37 CFR 1.98(a)(3) is satisfied by:
- ☐ the explanation provided on the attached sheet.
  - ☐ the explanation provided in the Specification.
  - ☐ submission of the enclosed International Search Report.
  - ☐ submission of the enclosed English-language version of a foreign Search Report and/or foreign Office Action.
  - ☐ the enclosed English language abstract.

☐ Applicant requests that the following non-published pending applications be considered:

Examiner's  
Initials

\_\_\_\_\_ U.S. Patent Application No. [ ], by [inventor(s)], filed [ ], Docket No.: [ ]

\_\_\_\_\_ U.S. Patent Application No. [ ], by [inventor(s)], filed [ ], Docket No.: [ ]

\_\_\_\_\_ U.S. Patent Application No. [ ], by [inventor(s)], filed [ ], Docket No.: [ ]

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Date

☐ A copy of each above-cited application, including the current claims, is enclosed.

☐ A copy of each above-cited application, including the current claims, is enclosed, except those entered in prior application, U.S. Application No. [ ], to which priority under 35 U.S.C. 120 is claimed.

The Examiner is requested to return a copy of the above list of pending applications indicating which references were considered with the next office communication.

It is requested that the information disclosed herein be made of record in this application.

Method of payment:

☐ A check for the fee noted above is enclosed, or the fee has been included in the check with the accompanying Reply. A copy of this Statement is enclosed.

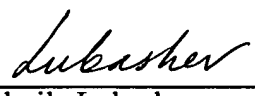
☐ Please charge Deposit Account 08-0380 in the amount of \$[ ]. A copy of this Statement is enclosed.

☒ Please charge any deficiency in fees and credit any overpayment to Deposit Account 08-0380.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By

  
Lyudmila Lubashev  
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Concord, MA 01742-9133

Dated: 9/1/04

PTO-1449 REPRODUCED

ATTORNEY DOCKET NO.  
1884.2021-001APPLICATION NO.  
10/763,573INFORMATION DISCLOSURE CITATION  
IN AN APPLICATION

June 11, 2004

(Use several sheets if necessary)

FIRST NAMED INVENTOR  
Neil J. GoldfineFILING DATE  
January 22, 2004EXAMINER  
not assignedCONFIRMATION NO.  
4895GROUP  
2857

## U.S. PATENT DOCUMENTS

EXAM- INER INI- TIAL	REF. NO.	DOCUMENT NUMBER Number-Kind Code (if known)	ISSUE DATE / PUBLICATION DATE MM-DD-YYYY	NAME OF PATENTEE OR APPLICANT OF CITED DOCUMENT
	AA	US 4,998,208 A	03/05/1991	Buhrow et al.
	AB	US 5,210,704 A	05/11/1993	Husseiny
	AC	US 6,420,867 B1	07/16/2002	Goldfine et al.
	AD	US 2002/0163333 A1	11/07/2002	Schlicker et al.
	AE			
	AF			
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	AA3			
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	AC3			

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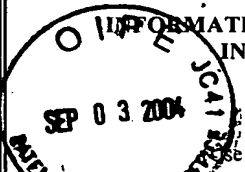
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## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER Country Code-Number-Kind Code (if known)	DATE MM-DD-YYYY	NAME OF PATENTEE OR APPLICANT OF CITED DOCUMENT	TRANSLATION	
					YES	NO
	AL	EP 1 353 252 A2	10/15/2003	The Boeing Company		
	AM					
	AN					
	AO					
	AP					
	AQ					
	AL2					
	AM2					
	AN2					
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PTO-1449 REPRODUCED		ATTORNEY DOCKET NO. 1884.2021-001	APPLICATION NO. 10/763,573	
 INFORMATION DISCLOSURE CITATION IN AN APPLICATION June 11, 2004 (Use several sheets if necessary)		FIRST NAMED INVENTOR Neil J. Goldfine		FILING DATE January 22, 2004
		EXAMINER not assigned	CONFIRMATION NO. 4895	GROUP 2857

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

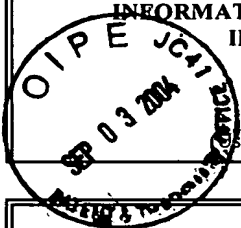
AR	Lichtenwalner, P.F., <i>et al.</i> , "Information Processing for Aerospace Structural Health Monitoring," <i>Proc. SPIE - Int. Soc. Opt. Eng., USA</i> , vol. 3326 (1998).
AS	Altynova, M.M., <i>et al.</i> , "Engineering Corrosion Prediction Model for Aircraft Structures," 6 <sup>th</sup> Joint FAA/DoD/NASA Aging Aircraft Conference, September 16-19, 2002, pp. 1-25.
AT	Munns, T.E., <i>et al.</i> , "Structural Health Monitoring: Degradation Mechanisms and System Requirements," IEEE, vol. 2, October 7, 2000, pp. 6.C.2-1 - 6.C.2-8.
AU	Chockie, A., <i>et al.</i> , "Effective Maintenance Practices to Manage System Aging," <i>Proc., Reliability and Maintainability Symposium, Las Vegas, NV</i> , (1992).
AV	Goldfine, N., Zilberstein, V., Washabaugh, A., "Material Condition Monitoring Using Embedded and Scanning Sensors for Prognostics," presentation at the 57th MFPT Conference, Virginia Beach, VA 2003.
AW	Goldfine, N., Zilberstein, V., Cargill, S., Schlicker, D., Shay, I., Washabaugh, A., Tsukernik, V., Grundy, D., Windoloski, M., "MWM-Array Eddy Current Sensors for Detection of Cracks in Regions with Fretting Damage," <i>Materials Evaluation, ASNT</i> , Vol. 60, No. 7, pp 870-877; July 2002.
AX	Washabaugh, A., Zilberstein, V., Lyons, R., Walrath, K., Goldfine, N., Abramovici, E., "Fatigue and Stress Monitoring Using Scanning and Permanently Mounted MWM-Arrays," 29th Annual Review of Progress in QNDE; Bellingham, Washington; July 2002.
AY	Goldfine, N., Schlicker, D., Sheiretov, Y., Washabaugh, A., Zilberteina, V., Lovett, T. "Conformable Eddy-Current Sensors and Arrays for Fleetwide Gas Turbine Component Quality Assessment," published in <i>ASME Journal of Engineering for Gas Turbines and Power</i> , Vol. 124, No. 4, pp. 904-909, October 2002.
AZ	Kaplan, M.P. and Wolff, T.A., "Life Extension and Damage Tolerance of Aircraft," in <i>Fatigue and Fracture, ASM Metals Handbook</i> , Tenth Edition, pp. 557-565, 1996.
AR2	Swift, T., "Damage Tolerance Certification of Commercial Aircraft," <i>ASM Handbook</i> , 10th Edition, 1996.
AS2	DOE Phase II Proposal, titled "Intelligent Probes for Enhanced Non-Destructive Determination of Degradation in Hot-Gas-Path Components," Topic #44c, dated March 23, 2002.

EXAMINER	DATE CONSIDERED
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PTO-1449 REPRODUCED

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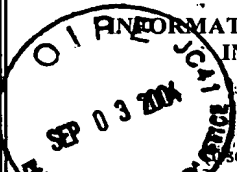
(Use several sheets if necessary)

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AT2	Air Force Phase II Proposal, titled "Detection and Imaging of Damage, Including Hydrogen Embrittlement Effects in Landing Gear and Other High-Strength Steel Components," Topic #AF01-308, dated April 9, 2002.
AU2	NASA Phase II Proposal, titled "Shaped Field Giant Magnetoresistive Sensor Arrays for Materials Testing," Topic #01-II A1.05-8767, dated May 2, 2002
AV2	Navy Phase I Proposal, titled "Observability Enhancement and Uncertainty Mitigation for Engine Rotating Component PHM," Topic #N02-188, dated August 14, 2002.
AW2	Final Report submitted to NASA, titled "Shaped Field Giant Magnetoresistive Sensor Arrays for Materials Testing," dated May 3, 2002.
AX2	Final Report submitted to Air Force, titled "Detection and Imaging of Damage, Including Hydrogen Embrittlement Effects in Landing Gear and Other High-Strength Steel Components," dated July 3, 2002.
AY2	Technical Report titled "MWM Examination of Twenty X2M Steel Fatigue Specimens After Abusive Grinding," US ARMY Final Report 08162002.
AZ2	Technical paper titled "Friction Stir Weld Inspection through Conductivity Imaging using Shaped Field MWM -Arrays," Proceedings of the 6th International Conference on Trends in Welding, Callaway Gardens, GA; ASM International, January 2003.
AR3	Technical paper titled "MWM Eddy Current Sensor Array Imaging of Surface and Hidden Corrosion for Improved Fleet Readiness and Cost Avoidance," presented at U.S. Army Corrosion Conference, Clearwater Beach; FL, February 11-13, 2003.
AS3	Technical paper titled "MWM Eddy Current Sensor Array Characterization of Aging Structures Including Hidden Damage Imaging," presented to the Aerospace Committee, NACE Conference, San Diego; CA, March 17-19, 2003.
AT3	Technical paper titled "Remote Temperature and Stress Monitoring Using Low Frequency Inductive Sensing," presented at the SPIE NDE/Health Monitoring of Aerospace Materials and Composites, San Diego, CA, March 2-6, 2003.
AU3	Technical paper titled "In-Situ Crack Detection and Depth Discrimination for Coated Turbine Blade Contact Faces," presented at the ASNT Spring Conference, Orlando, Florida, March 10-14, 2003.

EXAMINER

DATE CONSIDERED

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 <p>INFORMATION DISCLOSURE CITATION IN AN APPLICATION</p> <p>June 11, 2004</p> <p>(Use several sheets if necessary)</p>		FIRST NAMED INVENTOR Neil J. Goldfine		FILING DATE January 22, 2004
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**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	AV3	Technical paper titled "Nondestructive Evaluation for CBM and PHM of Legacy and New Platforms," presented at 57th MFPT Conference, Virginia Beach, VA; April 2003.
	AW3	Technical paper titled "Eddy Current Sensor Networks for Aircraft Fatigue Monitoring," Materials Evaluation, July 2003, Volume 61, No. 7.

EXAMINER	DATE CONSIDERED
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